IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction [[on]] relative to each of a plurality of motion compensating blocks formed by dividing an objective frame image of successive frame images [[by]] using a plurality of reference frame images, while sequentially changing pixel-based sizes of the plurality of motion compensating blocks, the method comprising ~~steps of~~:

~~a hierarchizing step of~~ thinning out pixels of a motion compensating block having a greatest pixel-based size to be taken as an uppermost layer of among blocks with smaller pixel-based sizes, to generate a size-reduced block in a lower layer having a predetermined size-reduction ratio;

~~a search range determining step of~~ determining motion vector search ranges respectively within the plurality of reference frame images~~, on the basis of the size-reduced block and other size-reduced blocks, and~~ based on a plurality of size-reduced reference images reduced in size corresponding to the size-reduction ~~ratios~~ ratio of the ~~sized-reduced~~ size-reduced block ~~and other size-reduced blocks respectively~~ by detecting motion vectors respectively within the plurality of size-reduced reference images and increasing a size of the motion vectors by linear interpolation to determine motion vector search ranges with respect to the plurality of reference frame images which correspond to an increased size of the motion vectors; and

~~a detecting step of~~ detecting an optimal motion vector while sequentially changing the pixel-based sizes of the plurality of motion compensating blocks by using each of the motion vector search ranges determined in the ~~search range~~ determining ~~step~~.

Claim 2 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 1, wherein the ~~search range~~ determining ~~step determines~~ further includes determining the motion vector search ranges depending upon respective differences in pixel-based values from respective ~~of the~~ size-reduced reference images.

Claim 3 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 2, wherein the ~~search range~~ determining ~~step~~ carries out block matching sequentially on the size-reduced reference images with the size-reduced block, so as to determine the motion vector search ranges on the basis of an absolute-value sum of a difference between a pixel-based value within the size-reduced block and a pixel-based value within a block corresponding to the size-reduced block within a predetermined size-reduced reference image.

Claim 4 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 3, wherein the ~~search range~~ determining ~~step determines~~ further includes determining the motion vector search ranges depending upon an absolute-value sum of differences between a pixel value of every other pixel with respect to a horizontal direction and a vertical direction of the size-reduced block and a pixel-based value within a corresponding portion of pixel-based values within the size-reduced block.

Claim 5 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 3, wherein the ~~search range~~ determining ~~step determines~~ further includes determining as one of the motion vector search ranges a peripheral pixel range including an enlarged lower layer motion vector enlarged from a lower layer motion vector

between a corresponding portion of pixels where an absolute-value sum of pixel-based values within the size-reduced block is minimum and the size-reduced block.

Claim 6 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 1, further comprising:

~~a search range selecting step of~~ selecting only [[the]] motion vector search ranges within the size-reduced reference images in which a difference of pixel-based values is minimized from the respective size-reduced blocks of among motion vector search ranges within the size-reduced reference images determined in the ~~search range~~ determining ~~step~~, wherein

the detecting ~~step~~ further includes detecting an optimal motion vector by using only the motion vector search ranges within the size-reduced reference images selected in the ~~search range~~ selecting ~~step~~.

Claim 7 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 1, wherein:

the detecting ~~step~~ further includes detecting the optimal motion vector depending on respective differences in pixel-based values between the size-reduced ~~blocks~~ block and the size-reduced reference images, a quantizing scale function, and a generation code amount for the motion vector differences.

Claim 8 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 1, wherein the detecting ~~step~~ further includes detecting an optimal motion vector based on a Rate Distortion optimization process.

Claim 9 (Currently Amended): A method [[for]] of compensating [[for]] motion prediction according to claim 1, wherein the detecting ~~step~~ further includes sequentially changing the pixel-based sizes of the motion compensating blocks from a greater pixel-based size to a smaller pixel-based size, so as to size-reduce [[the]] a motion vector search range each time a change is made.

Claim 10 (Currently Amended): An apparatus for compensating [[for]] motion prediction [[on]] relative to each of a plurality of motion compensating blocks formed by dividing an objective frame image of successive frame images [[by]] using a plurality of reference frame images, while sequentially changing pixel-based sizes of the plurality of motion compensating blocks, the apparatus comprising:

hierarchizing means for thinning out pixels of a motion compensating block having a greatest pixel-based size to be taken as an uppermost layer of among blocks with smaller pixel-based sizes, to generate a size-reduced block in a lower layer having a predetermined size-reduction ratio;

search range determining means for determining motion vector search ranges respectively within the plurality of reference frame images~~, on the basis of the size-reduced block and other size-reduced blocks, and~~ based on a plurality of size-reduced reference images reduced in size corresponding to the size-reduction ~~ratios~~ ratio of the ~~sized reduced~~ size-reduced block ~~and other size-reduced blocks respectively~~ by detecting motion vectors respectively within the plurality of size-reduced reference images and increasing a size of the motion vectors by linear interpolation to determine motion vector search ranges with respect to the plurality of reference frame images which correspond to an increased size of the motion vectors; and

detecting means for detecting an optimal motion vector while sequentially changing the pixel-based sizes of the plurality of motion compensating blocks by using the motion vector search ranges determined by the search range determining means.

Claim 11 (New): An apparatus configured to compensate motion prediction relative to each of a plurality of motion compensating blocks formed by dividing an objective frame image of successive frame images using a plurality of reference frame images, while sequentially changing pixel-based sizes of the plurality of motion compensating blocks, the apparatus comprising:

a hierarchizing unit configured to thin out pixels of a motion compensating block having a greatest pixel-based size to be taken as an uppermost layer of among blocks with smaller pixel-based sizes, to generate a size-reduced block in a lower layer having a predetermined size-reduction ratio;

a search range determining unit configured to determine motion vector search ranges respectively within the plurality of reference frame images based on a plurality of size-reduced reference images reduced in size corresponding to the size-reduction ratio of the size-reduced block by detecting motion vectors respectively within the plurality of size-reduced reference images and increasing a size of the motion vectors by linear interpolation to determine motion vector search ranges with respect to the plurality of reference frame images which correspond to an increased size of the motion vectors; and

a detecting unit configured to detect an optimal motion vector while sequentially changing the pixel-based sizes of the plurality of motion compensating blocks by using the motion vector search ranges determined by the search range determining unit.